

QUEST

ADVENTURES IN THE WORLD OF SCIENCE

OCEANS II

36



THREE PROJECTS
MORE Q & A CARDS

FACT FILES ON:

- Supertankers
- Coral reefs
- Salvage subs
- Satellite navigation systems
- Rising sea levels
- The giant blue whale

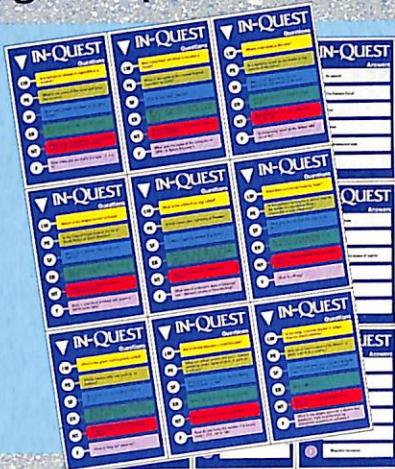


GIANT POSTER

INSIDE THIS PACK

FACT FILES

- Locating sunken wrecks
- Whale 'songs'
- Sea monsters
- Cargo carriers
- Navigation
- Video route maps
- Rescue operations
- Lightships
- Oil tankers

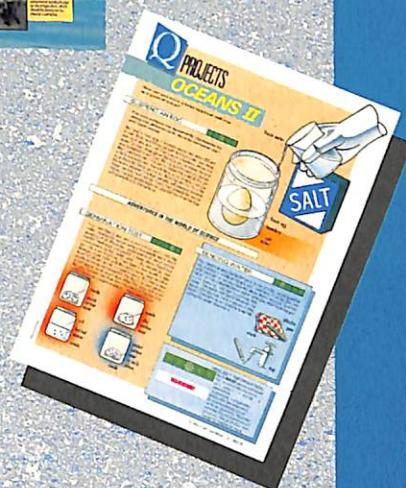


More In-Quest Q & A cards

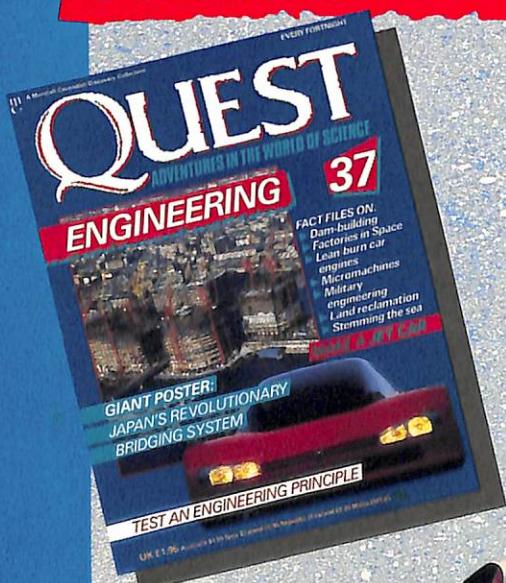


POSTER Luxury liner

THREE SCIENTIFIC PROJECTS



COMING IN QUEST 37 ENGINEERING



FACT FILES INCLUDE:

- Space factories
- Building dams
- Military engineering
- Computer software
- Land reclamation
- Auto navigation
- Hi-tech cars



MODEL
Jet car

POSTER:

The longest span bridge



ISSN 1350-3766





PROJECTS

OCEANS II

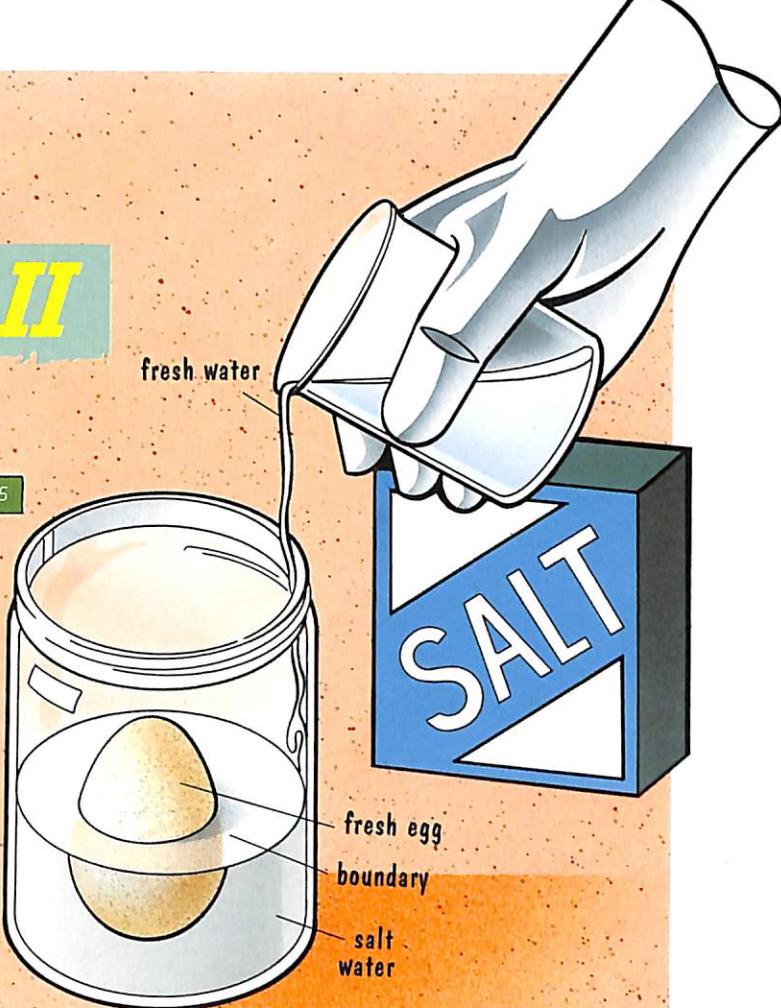
How can you make a fresh egg float half-way up a glass of water?

SUSPEND AN EGG

1 2 3 4 5

You can achieve the apparently impossible by using the difference in density between salt and fresh water.

You need a fresh egg, a large jar, water and about 500 gm. of salt. First, half fill the jar with hot tap water and keep stirring in the salt until it no longer dissolves. Allow the water to cool, then place the egg on the water. As you would expect it will float. Fill a jug with cold tap water, then carefully pour the water down the side of the jar until it is almost full. You will find, surprisingly, that the egg stays halfway up the jar, floating on the invisible boundary between the high density salt water and much lower density fresh water. If you then disturb the water, mixing the two gently together, you will find that the egg will slowly float to the surface.

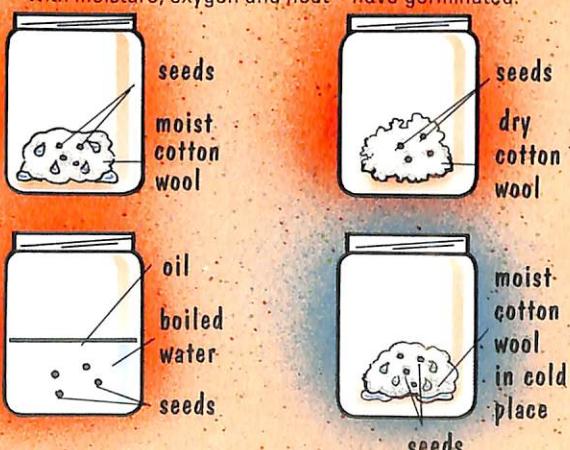


ADVENTURES IN THE WORLD OF SCIENCE

GERMINATION TEST

1 2 3 4 5

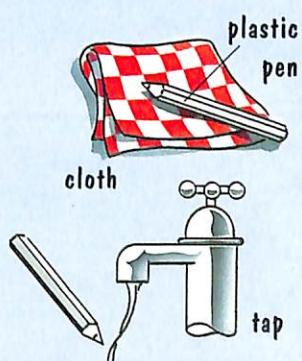
You need four glass jars, some cotton wool, cold tap water, cold boiled water, some cress seeds and a small quantity of oil. Place four cress seeds on moist cotton wool in the first jar and put it in a warm place. Place four cress seeds on dry cotton wool in the second jar and put it in a warm place. Place four cress seeds in the third jar, cover them with the boiled water, pour on a thin layer of oil and put it in a warm place. Put four cress seeds on moist cotton wool in the fourth jar and put it in a cold place, such as a fridge. After five days look at all the jars. You will find that only the seeds in the first one – with moisture, oxygen and heat – have germinated.



BENDING WATER

1 2 3 4 5

You need a plastic ballpoint pen, a tap of cold, running water and a piece of cloth or simply your own hair. First rub the pen with the cloth or on your hair for about three minutes. Turn the tap on so that a thin trickle of water emerges, then hold the pen quite close to, but not touching, the water. The water will bend because the static charge you have created in the plastic pen acts as an electro-magnet, pulling the water towards it.



PROJECT INFORMATION

1 2 3 4 5

WARNING!

Each QUEST project and model has its own difficulty rating: 1 very simple, 2 simple, 3 intermediate, 4 advanced, 5 complicated. Every care has been taken to ensure projects are as safe as possible. However, parents should supervise all projects. The publisher can accept no liability for injury.

FLIGHT II: WORLD'S MAJOR AIRPORTS

NAME	PASSENGERS (000)	CARGO (000 tonnes)
O'Hare, Chicago, USA	44,028	614
Hartfield, Atlanta, USA	38,989	—
Los Angeles, Calif., USA	34,394	722
Dallas, Texas, USA	32,267	269
JFK, New York, USA	29,935	1,121
Heathrow, London, UK	29,164	541
Stapleton, Denver, USA	28,806	—
Tokyo, Japan	26,377	279
San Francisco, Calif., USA	24,193	388
Newark, New York, USA	23,654	206
La Guardia, New York, USA	20,303	43
Logan, Boston, USA	19,418	252
Miami, Florida, USA	19,328	470
Flughafen, Frankfurt, Germany	18,297	686
Osaka, Japan	17,670	128
Aeroport de Paris, Orly, France	17,174	205
Lambert Airport, St Louis, USA	16,629	—
Honolulu, Oahu, USA	16,551	199
Toronto, Canada	14,752	na
Washington, DC, USA	14,574	na

OCEANS II : SEAS

SEAS	AREA	AVERAGE DEPTH
South China	2,974,600	1,200
Caribbean Sea	2,753,000	2,400
Mediterranean Sea	2,503,000	1,485
Bering Sea	2,268,180	1,400
Gulf of Mexico	1,542,985	1,500
Sea of Okhotsk	1,527,570	840
East China Sea	1,249,150	180
Hudson Bay	1,232,300	120
Sea of Japan	1,007,500	1,370
Andaman Sea	797,700	865
North Sea	575,300	90
Black Sea	461,980	1,100
Red Sea	437,700	490
Baltic Sea	422,160	55
Persian Gulf	238,790	24
Gulf of St Lawrence	237,760	120
Gulf of California	162,000	810
English Channel	89,900	54
Irish Sea	88,550	60
Bass Strait	75,000	70

OCEANS II: OCEANS

OCEAN	AREA	PERCENTAGE OF SEA AREA
Pacific	166,240,000	46.0
Atlantic	86,560,000	23.9
Indian	73,430,000	20.3
Arctic	13,320,000	3.7
Other seas	22,280,000	6.1
Totals	361,740,000	100.0

THE UNKNOWN: PHOBIAS

NAME	FEAR OF
Acerophobia	Sourness
Acrophobia	Sharpness
Akousticophobia	Sound
Algophobia	Pain
Altophobia	Heights
Ancraophobia	Wind
Androphobia	Men
Anginophobia	Narrowness
Anthropophobia	People
Antlophobia	Flood
Apeiophobia	Infinity
Apiphobia	Bees
Asthenophobia	Weakness
Astraphobia	Lightning
Atelophobia	Imperfection
Bacilliphobia	Microbes
Barophobia	Gravity
Bathophobia	Depth
Batophobia	Walking
Batrachophobia	Reptiles
Belonephobia	Needles
Blennophobia	Slime
Brontophobia	Thunder
Carcinophobia	Cancer
Cardiophobia	Heart disease
Chaetophobia	Hair
Cheimatophobia	Cold
Cherophobia	Cheerfulness
Chionophobia	Snow
Chometophobia	Money
Chromophobia	Colour
Clinophobia	Going to bed
Cnidophobia	Stings
Coprophobia	Faeces
Cryophobia	Ice, frost
Cymophobia	Sea swell
Cynophobia	Dogs
Demophobia	Crowds
Demonophobia	Demons
Dendrophobia	Trees
Dermatophobia	Skin
Doraphobia	Fur
Dromophobia	Crossing streets
Eisoptrophobia	Mirrors
Gynophobia	Women
Keraunothnetophobia	Falling satellites
Koniphobia	Dust
Maniaphobia	Insanity
Musophobia	Mice
Nephophobia	Clouds
Oneirophobia	Dreams
Peniaphobia	Poverty
Phasmophobia	Ghosts
Pogonophobia	Beards
Pyrophobia	Fire
Siderodromophobia	Travelling by train
Stasophobia	Standing
Thaasophobia	Sitting idle
Thanatophobia	Death
Taphophobia	Burial alive
Trypanophobia	Injections
Xenophobia	Foreigners
Zoophobia	Animals

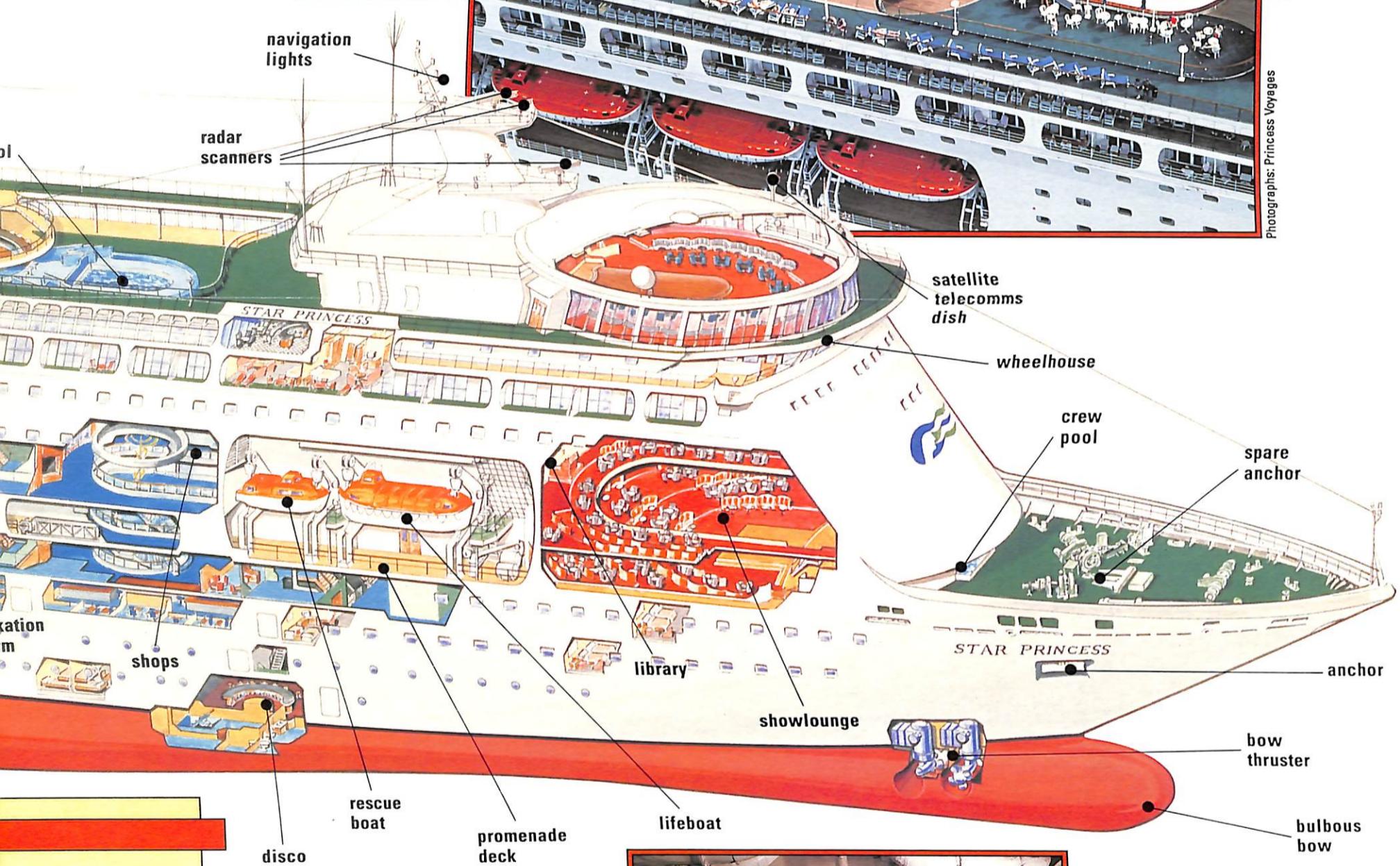
Y LINER

CRUISING THE HIGH SEAS IN HIGH STYLE

The liner's swimming pools are filled with fresh water, which is heated in cold weather. Every day the ship's desalination plant turns 841,000 litres of sea water into water for drinking and washing.

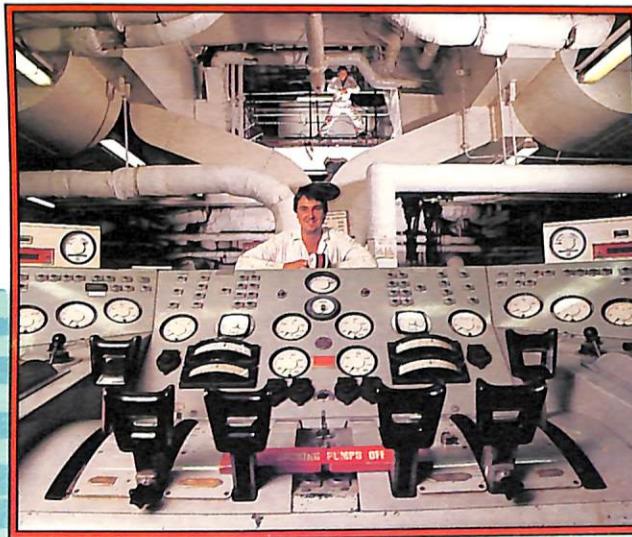


Photographs: Princess Voyages



A propeller mounted in a housing through the ship's side to the other. The pitch can be reversed so as either to the left or

The ship's rolling motion is controlled by twin stabilizers, each like an aircraft's wing. As a ship builds up, the angle of a stabilizer is automatically adjusted to generate an upward or downward force opposing the roll.



The engine control room is so highly automated that it is manned by just three engineers—far fewer than in older ships. The readings of most of these instruments are duplicated on the bridge, from which the ship's speed can be directly controlled.

LUXURY

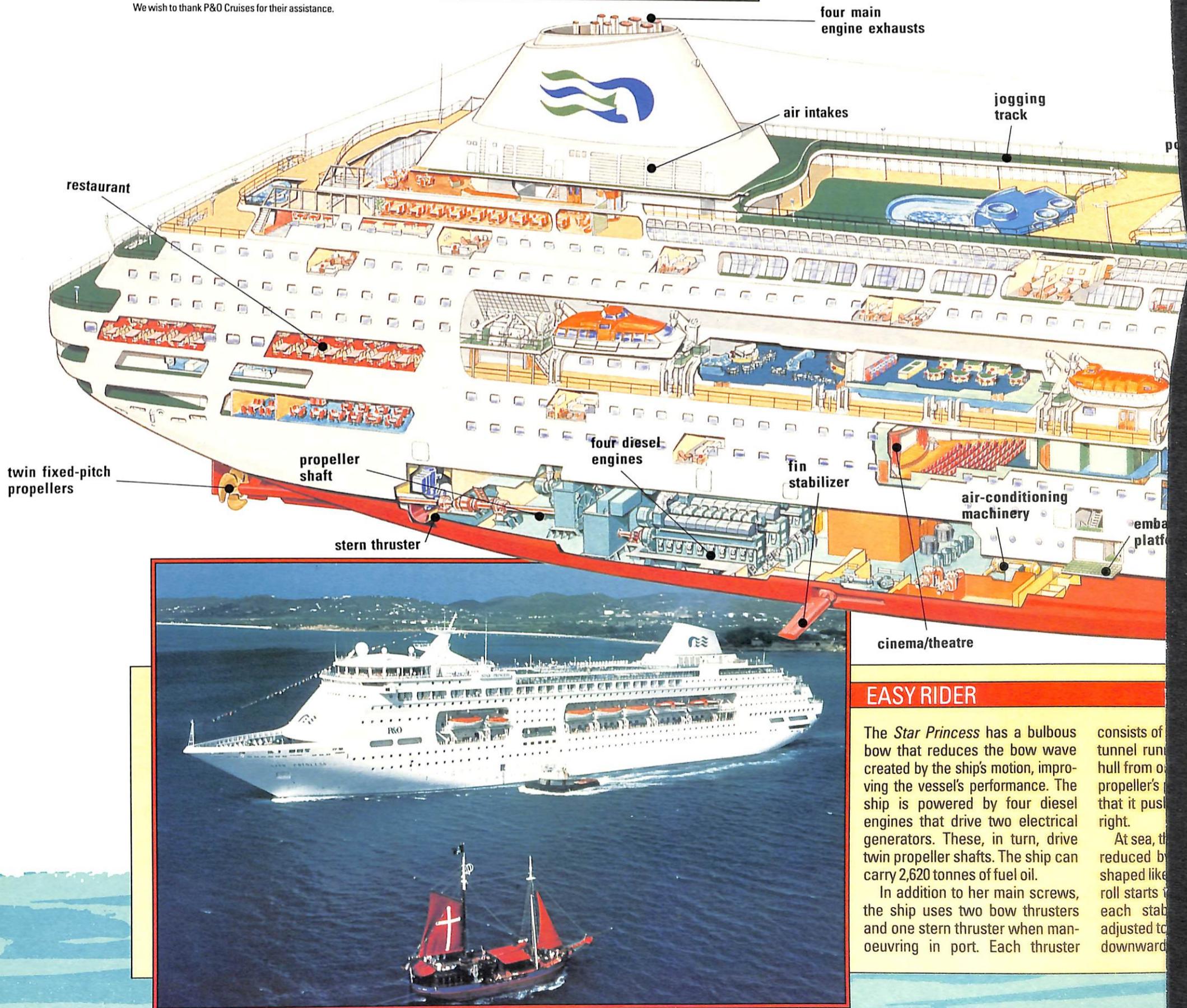
PROFILE

STAR PRINCESS

The *Star Princess* is the latest addition to the P & O fleet of cruise ships. She makes trips from Fort Lauderdale, Florida, to tour the islands of the Caribbean, and from San Francisco, California, to view the glaciers of Alaska. The cruises last about two weeks, during which the passengers enjoy luxurious facilities that include a gymnasium, sauna, two shopping arcades, three restaurants, a disco, two theatres and a cinema.

Tonnage: 62,500 tonnes
Length: 245.4 metres
Width: 32 metres
Cruising speed: 19.5 knots (36.1 km/h)
Maximum speed: 22.5 knots (41.7 km/h)
Number of cabins: 735
Number of passengers: 1,470
Number of crew: 563
Cabins: 735
Propulsion: Four diesel engines driving two 12-megawatt (16,000-hp) electric motors
Builder: Chantiers d'Atlantique, France

We wish to thank P&O Cruises for their assistance.



EASY RIDER

The *Star Princess* has a bulbous bow that reduces the bow wave created by the ship's motion, improving the vessel's performance. The ship is powered by four diesel engines that drive two electrical generators. These, in turn, drive twin propeller shafts. The ship can carry 2,620 tonnes of fuel oil.

In addition to her main screws, the ship uses two bow thrusters and one stern thruster when manoeuvring in port. Each thruster

consists of a tunnel running along the hull from one end to the other. The propeller is positioned so that it pushes the hull to the right.

At sea, the ship's hull is reduced by 10% in width. The bow is shaped like a wedge and the stern is rounded. The roll starts to decrease as the ship moves forward, each stabilizer being adjusted to the correct angle.